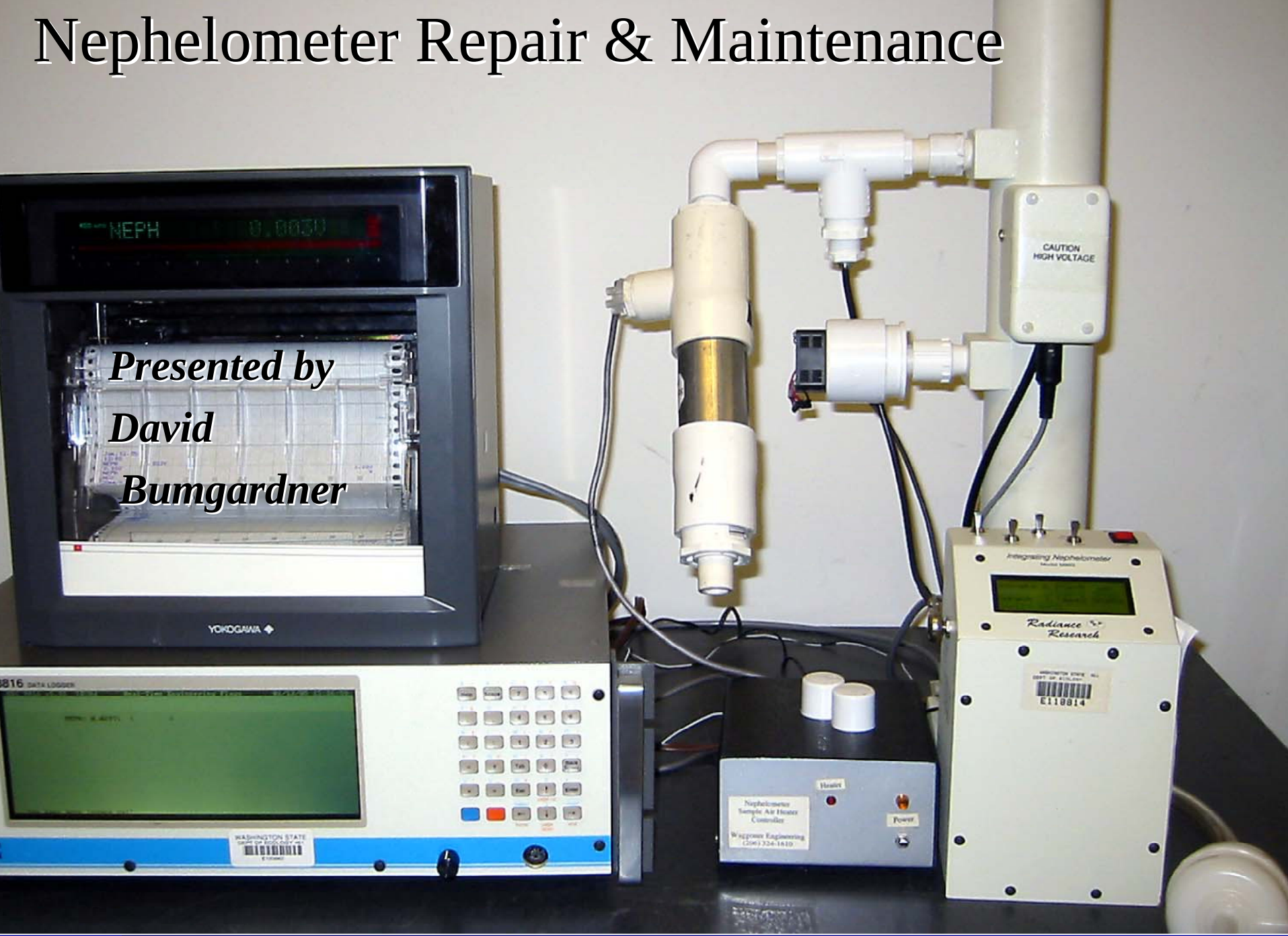
Nephelometer Repair & Maintenance



Presented by

David

Bumgardner

Common Problems

- No power?
  - Ensure the power plug is fully seated
  - Review instrument configuration sheet

  (attached to the neph by repair & calibration)
  - Check wiring connections
- Problems during calibration
  - Review calibration procedure
  - Call the repair and calibration lab

Probe Maintenance

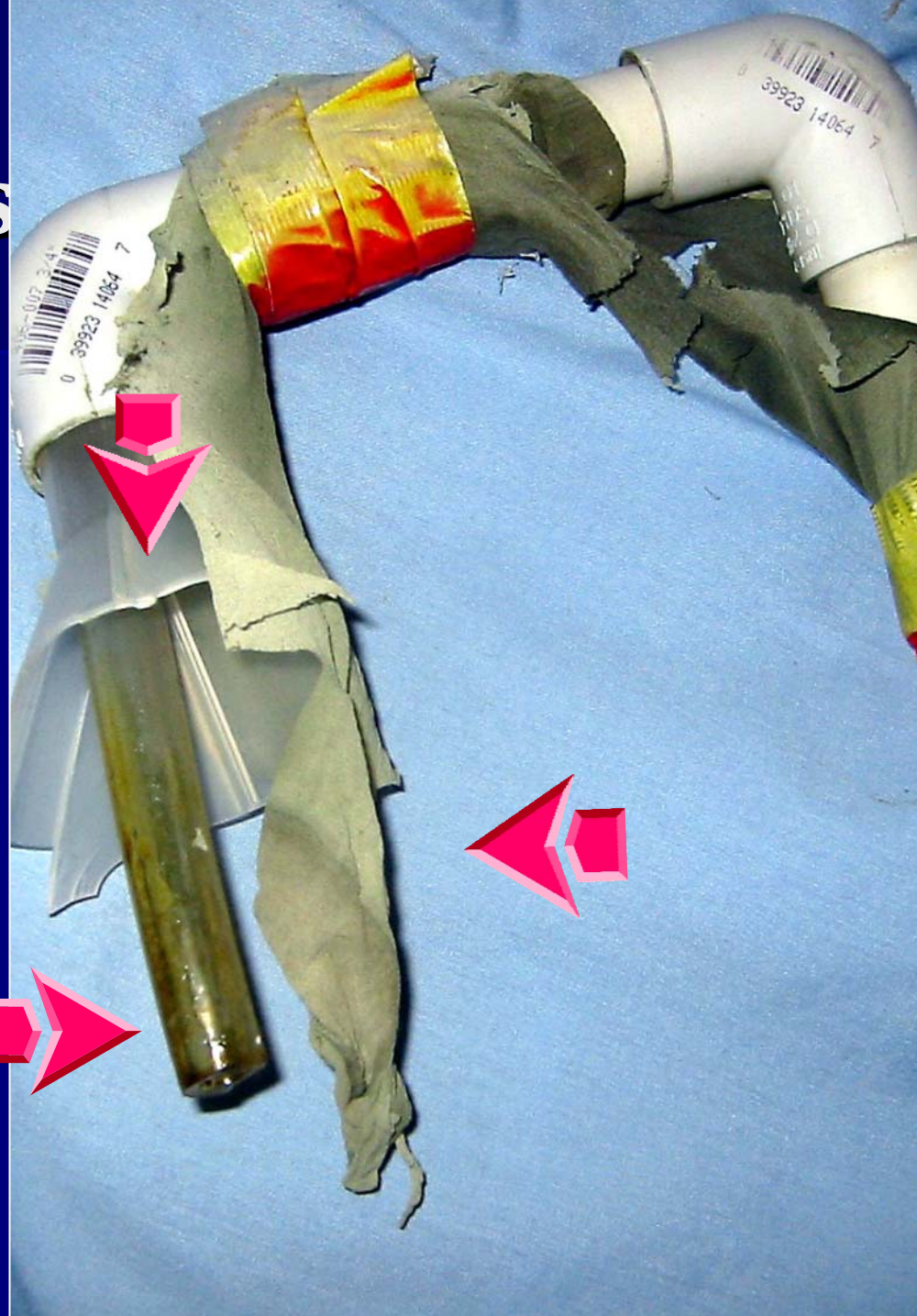
- Has your bug screen been replaced recently?
- Clean and replace the bug screens quarterly

- How about your rain cone?

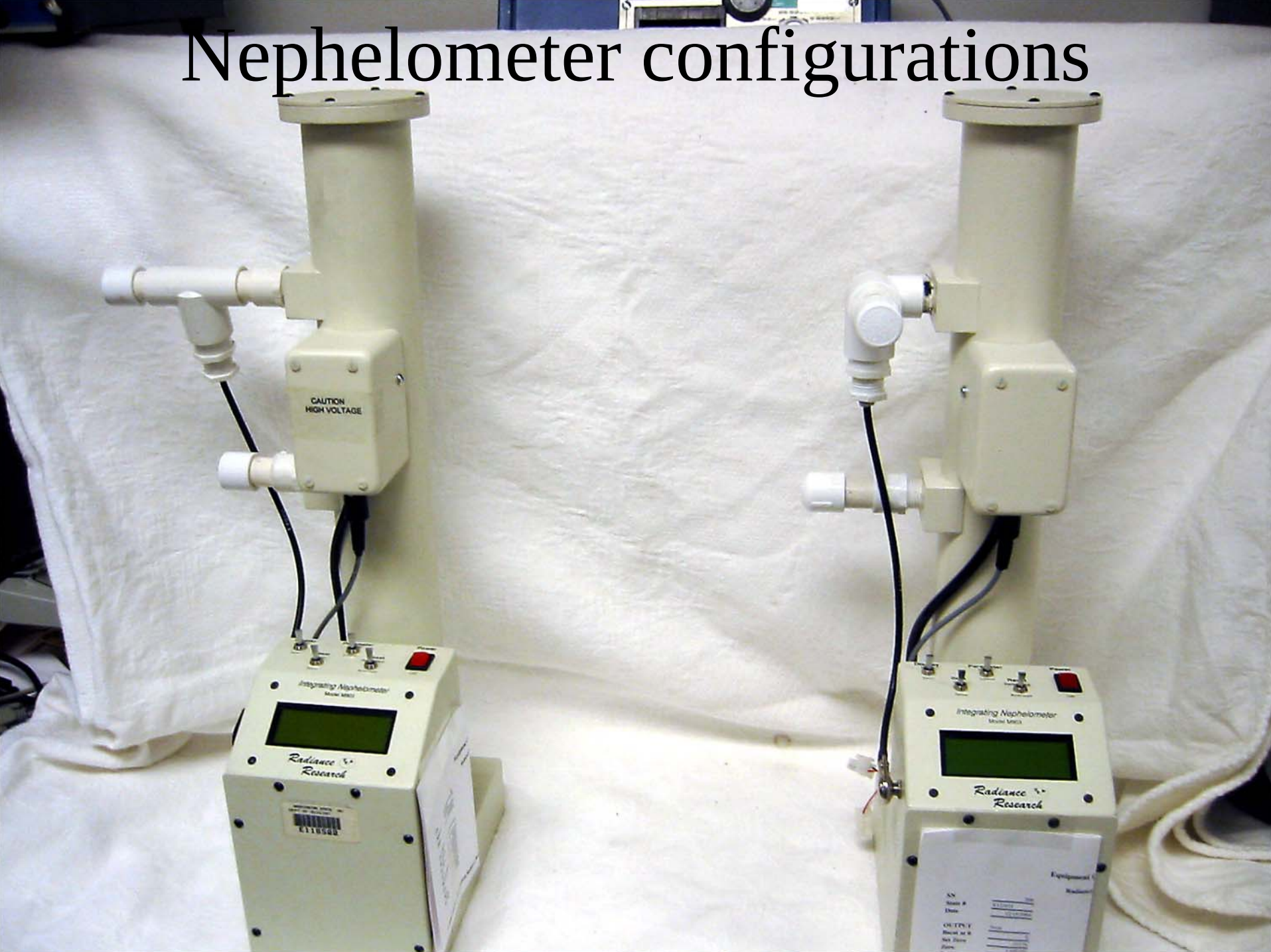
- Your probe should look like this

Not Like This

- Notice the broken cone, dirty sticky probe and the worn bug screen



Nephelometer configurations

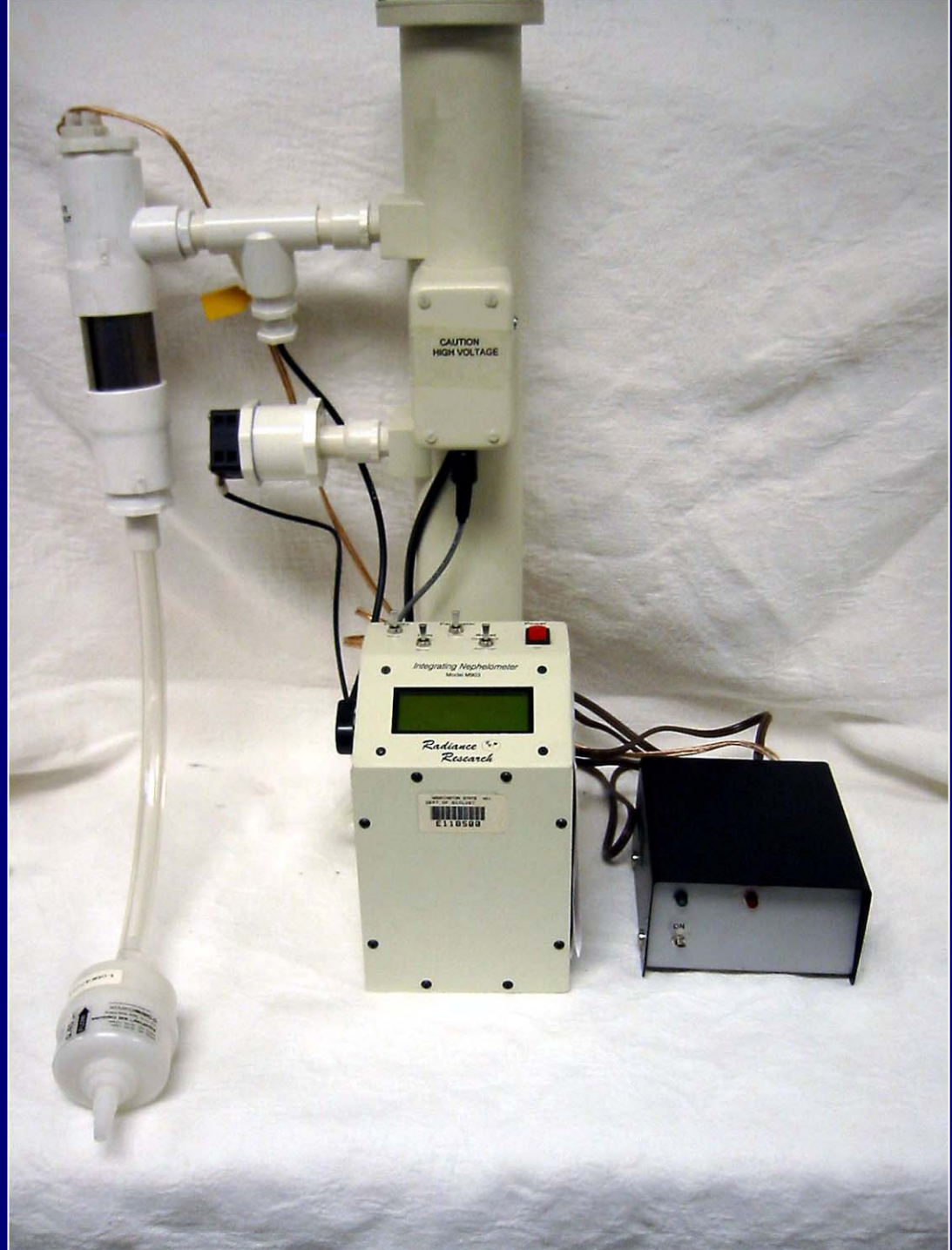


Nephelometer Configurations

- What configuration do you have installed at your site?
- 5 volts or 1 volt (important information when asking for an exchange unit)
- T-type Rh sensor or Elbow Rh sensor

•Original Rh sensor configuration with “old style” heater

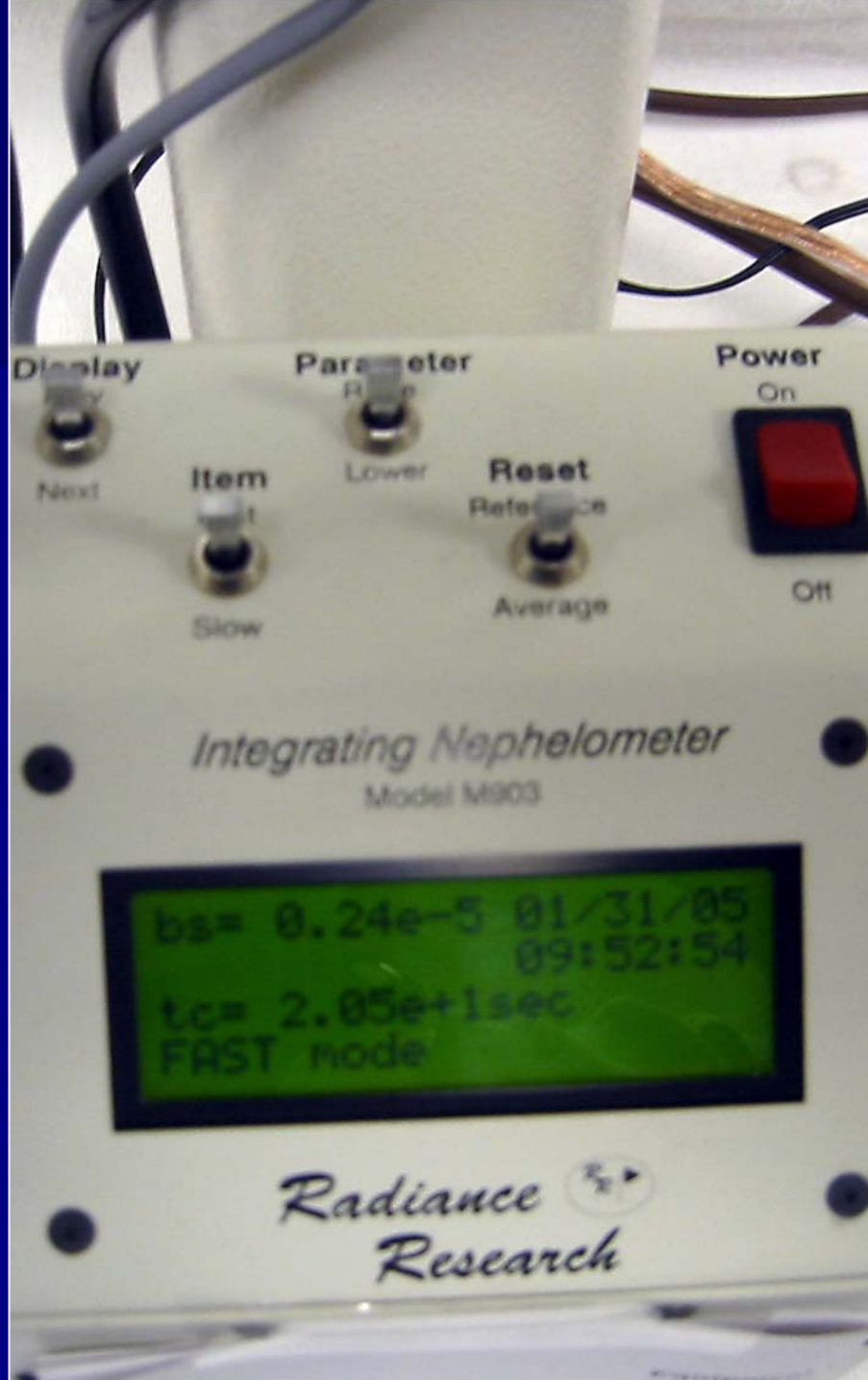
- Current style heater with T-type Rh sensor



•Current style heater with elbow Rh sensor

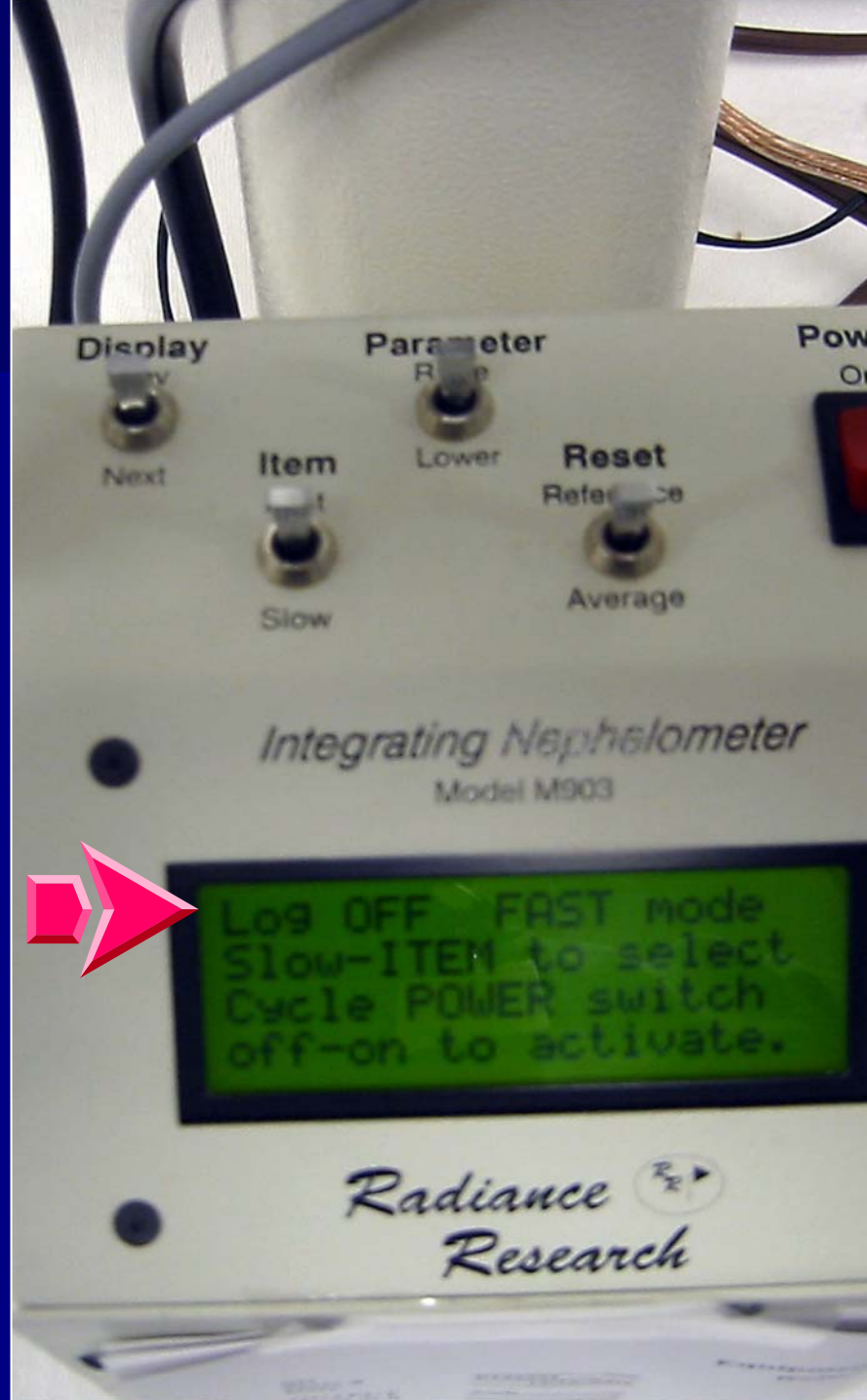
Nephelometer Screens

- Startup screen
- Check the mode, ensure you are in the correct mode settings for your site
- How do you change modes?

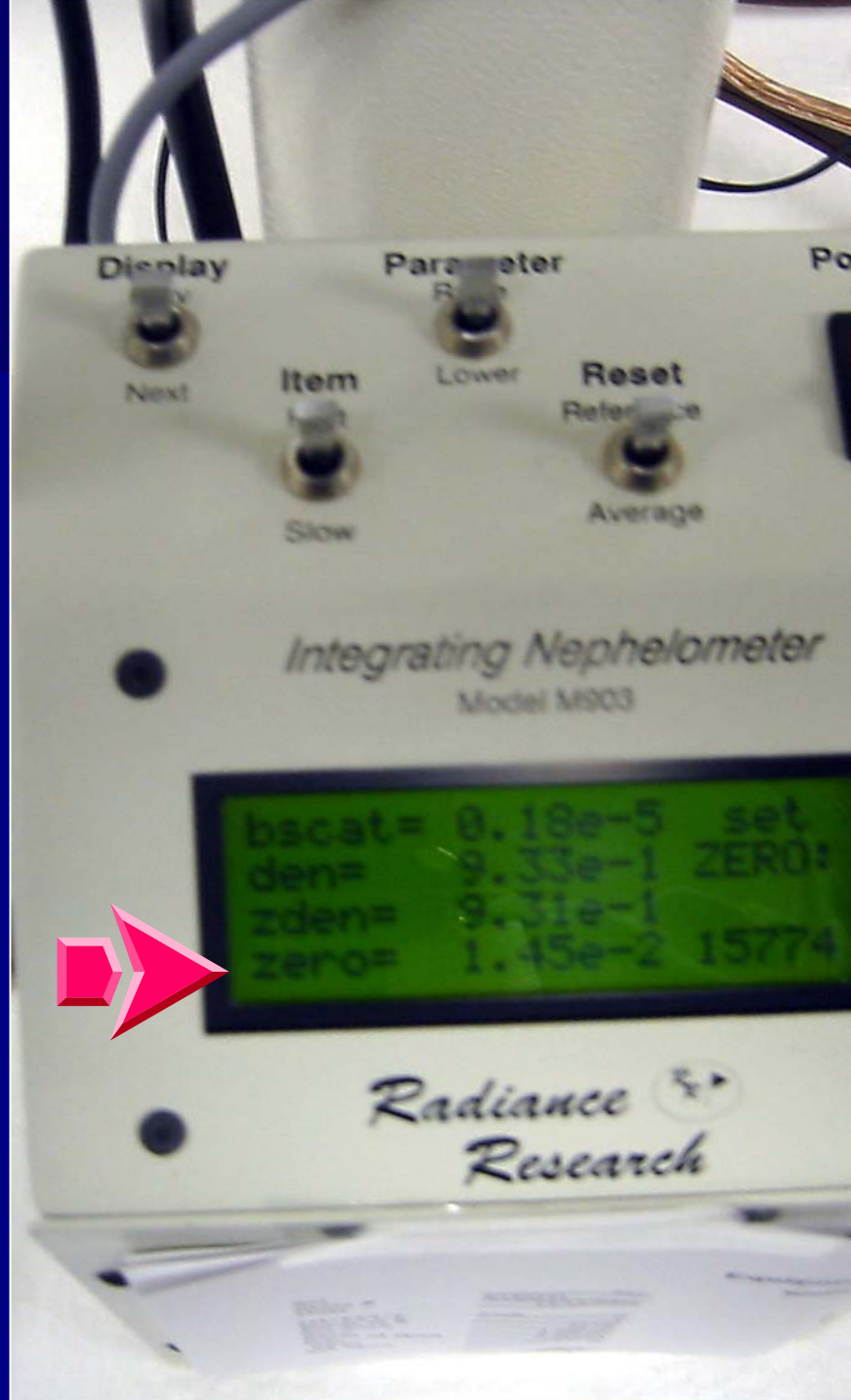


This screen is where you change mode from FAST, SLOW or Log

- Follow instructions on the screen
- Using the Item switch to change mode, then turn Off and back On to change

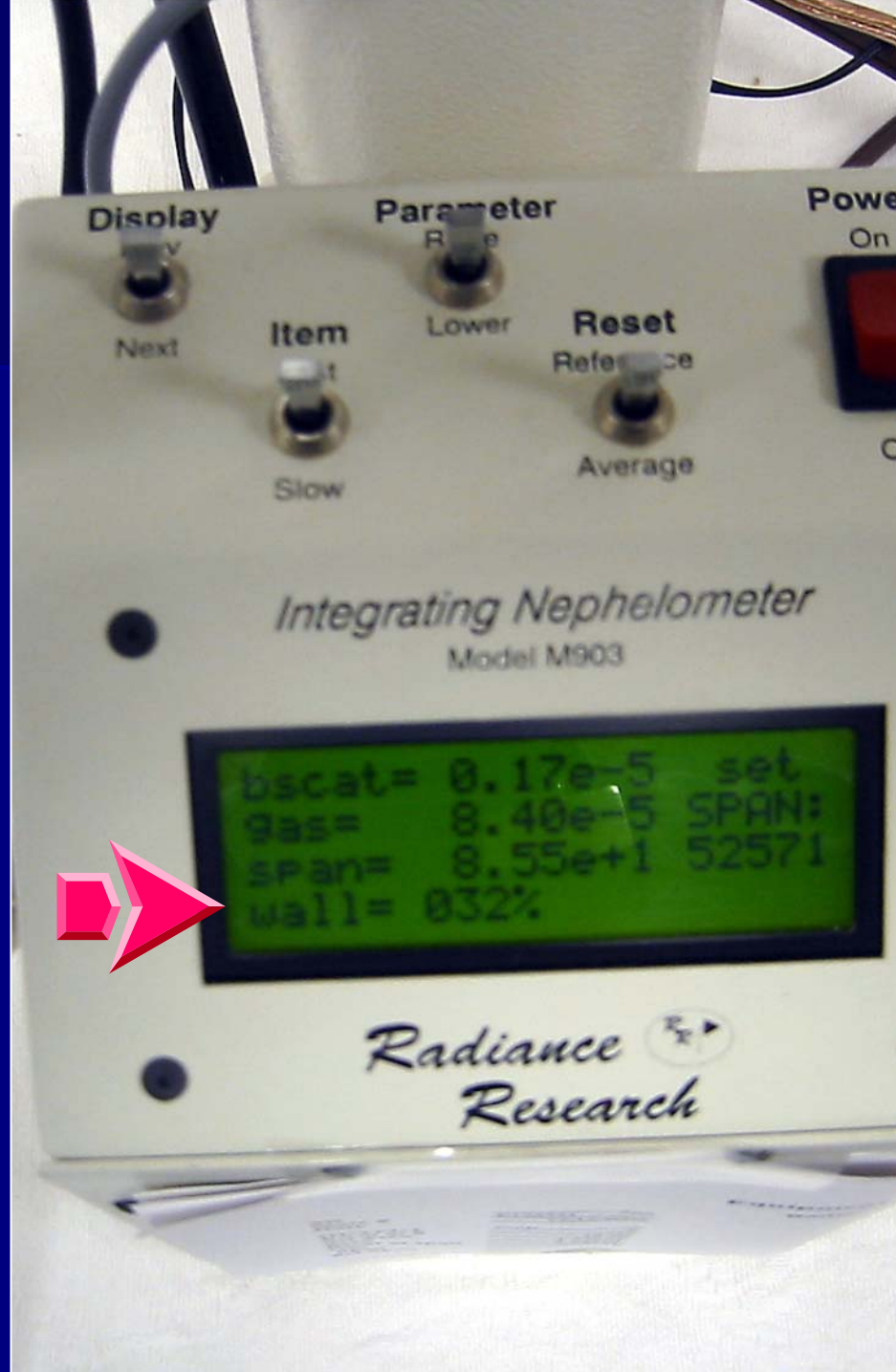


Zero Screen
This is where you set zero
(Look for the word zero on the screen before you start)
•Place zero filter on the inlet
•A common mistake is to adjust while in the span screen



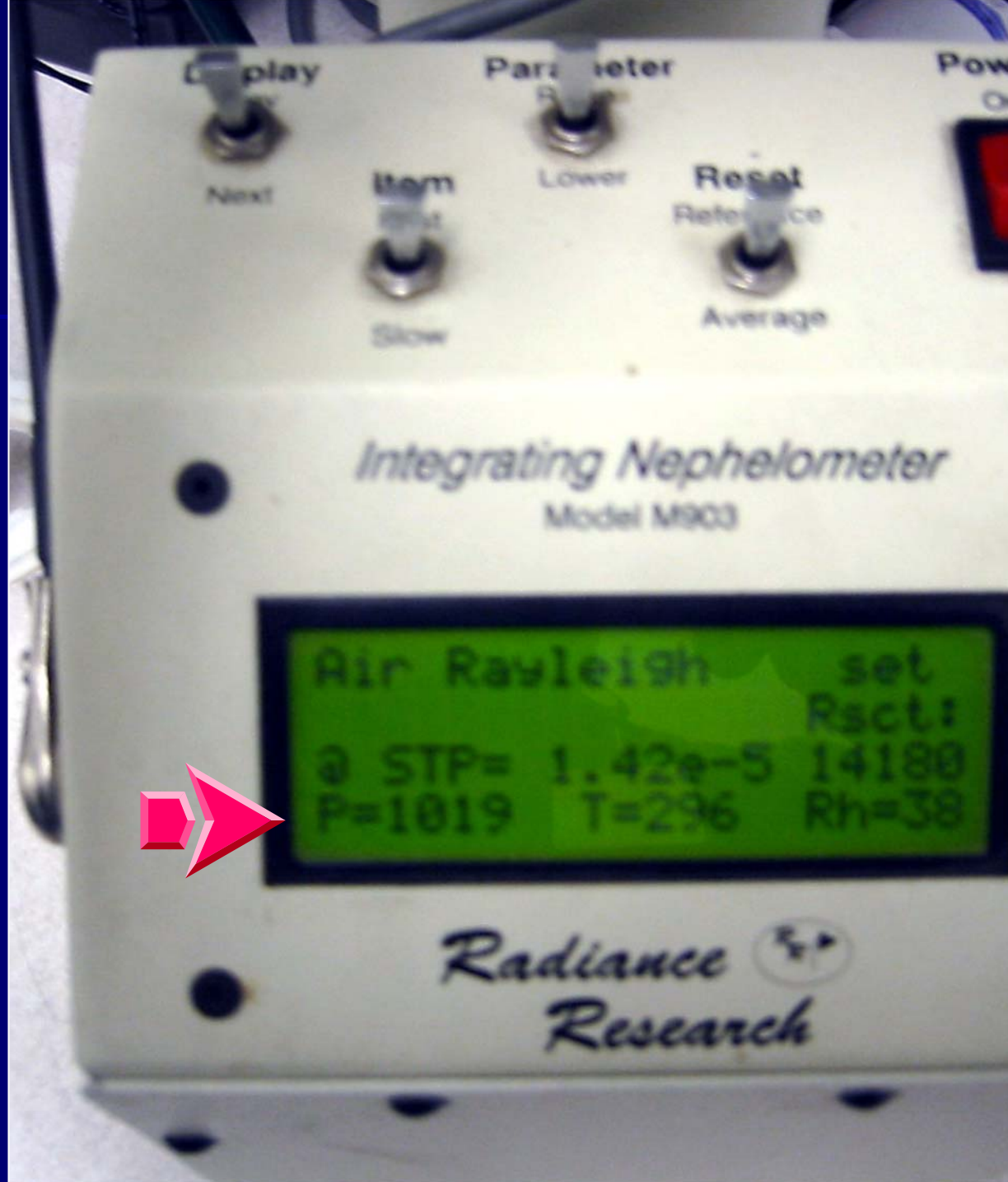
Span Calibration screen

- Wall is the indication of how dirty the inside of the Neph is
- <u>80% or greater Wall,</u> call the Air Lab to exchange the Neph



•If the smooth brightness falls below 30,000 contact the Lab at (360) 407-6030

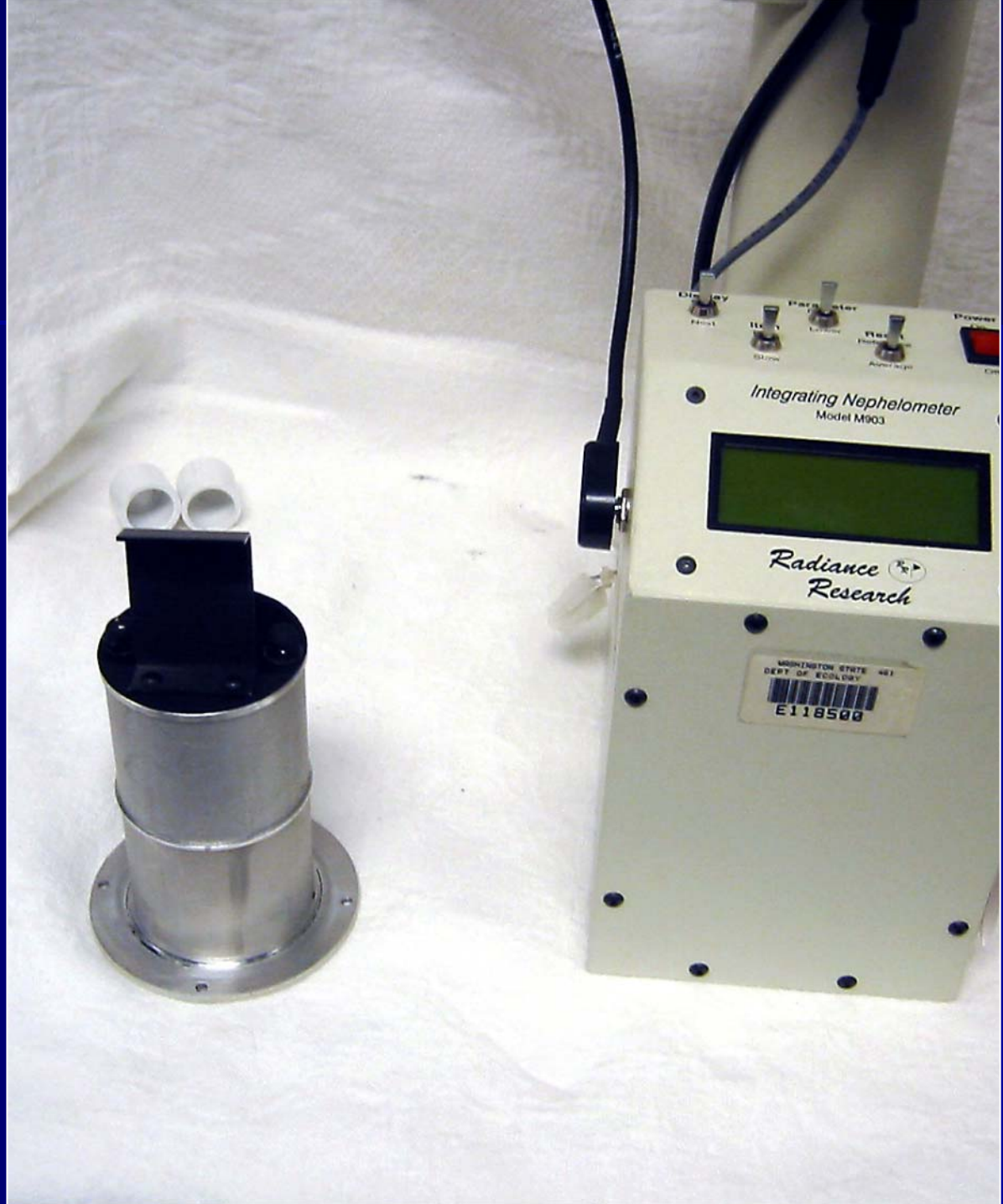
•If the P (pressure) number equals zero, call the Air Lab



- New or repaired Nephs from Ray Weiss come with Rayleigh settings at 7.53 which is for R-12 Freon
- This needs to be changed to 7.35 for R134a

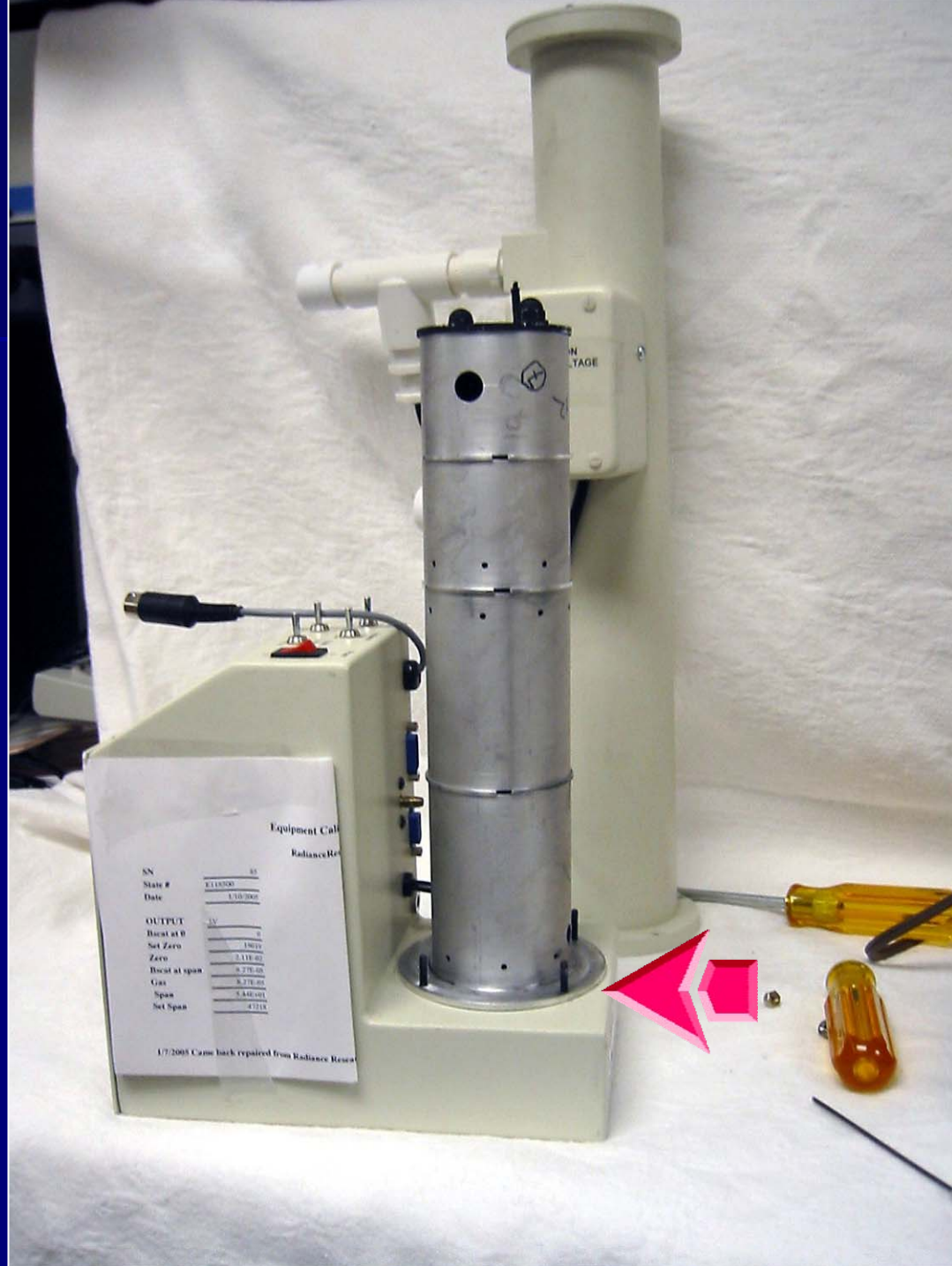
Nephelometer Don’ts

- Please don’t take the top off for any reason!
- If you want to know what the inside looks like, check out the next few slides



- The top part disassembled
- Each plate and cylinder has to be assembled in the proper order

•Top cylinder removed
Contains: 4 plates, 4 cylinders, Photometer tube at the bottom of the Neph



- Please, please don't take your neph apart
- Problems? Call me!

Questions & Answers